

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in this application:

Listing of Claims:

Claim 1 (Cancelled).

Claim 2 (Currently amended): An improved polyurethane geotextile composite ~~which is useful as a liner for canals and ditches~~ comprising a geotextile impregnated with an unfilled polyurethane composition comprising a reaction product of:

- a) a liquid polyisocyanate having an isocyanate content of at least 10% by weight and represented by the formula $Q(NCO)_n$ in which n represents a number from 2 to about 5 and Q represents an aliphatic hydrocarbon group containing from 2 to about 18 carbon atoms, a cycloaliphatic hydrocarbon group containing from 4 to about 15 carbon atoms, an araliphatic hydrocarbon group containing from 8 to 15 carbon atoms, or an aromatic hydrocarbon group containing from 6 to about 15 carbon atoms,
- b) an isocyanate reactive component comprising one or more high molecular weight polyether polyols having from 2 to 6 hydroxyl groups and a number average molecular weight of at least 250 to 8,000 and 0 to 10% by weight of a low molecular weight diol or triol having an equivalent weight of 31 to 99, and
- c) an organometallic catalyst,

wherein the isocyanate reactive component b) contains no more than 0.1% by weight water prior to reaction with the liquid polyisocyanate a).

Claim 3 (Previously presented): The composite of Claim 2, wherein the amounts of components a) and b) are such that the NCO : OH equivalent ratio is from 1.4:1.0 to 0.9: 1.0.

Claim 4 (Previously presented): The composite of Claim 2, wherein the amounts of components a) and b) are such that the NCO : OH equivalent ratio is from 1.1:1.0 to 1.0:1.0.

Claim 5 (Previously presented): The composite of Claim 2, wherein the liquid polyisocyanate has an isocyanate group content of more than 20% by weight.

Claim 6 (Previously presented): The composite of Claim 2, wherein the liquid polyisocyanate has an isocyanate group content of more than 30% by weight.

Claim 7 (Previously presented): The composite of Claim 2, wherein the polyether polyol comprises one or more polyoxypropylene polyethers having a molecular weight of 400 to 4,000 and an average functionality of 2 to 3.

Claim 8 (Previously presented): The composite of Claim 2, wherein the catalyst comprises a tin compound in the amount of from 0.0001 to 0.05 parts by weight per 100 parts by weight of isocyanate reactive component.

Claim 9 (Previously presented): The composite of Claim 2, wherein the liquid polyisocyanate is an aromatic polyisocyanate.

Claim 10 (Previously presented): The composite of Claim 2, wherein the liquid polyisocyanate is a polymethylene poly(phenylisocyanate) having an NCO-content of about 30 to 33% and a viscosity of from about 20 mPa·s to 2,000 mPa·s at 25°C.

Claim 11 (Previously presented): The composite of Claim 2, wherein the low molecular weight diol or triol comprises 0 % by weight of the isocyanate reactive component b).

Claim 12 (Previously presented): The composite of Claim 2, wherein the amount of polyurethane per square meter of geotextile ranges from 1kg to 20 kg.

Claim 13 (Previously presented): The composite of Claim 2, wherein the amount of polyurethane per square meter of geotextile ranges from 2kg to 5 kg.

Claim 14 (Previously presented): The composite of Claim 2, wherein the thickness of the polyurethane geotextile composite ranges from 50 microns to about 500 microns.

Claims 15-18 (Cancelled)

Claim 19 (Currently amended): An improved polyurethane geotextile composite ~~suitable for use as a liner for canals and ditches~~ comprising a geotextile impregnated with an unfilled polyurethane composition, the unfilled polyurethane composition comprising a reaction product of:

- a) a liquid polyisocyanate having an isocyanate content of at least 10% by weight and represented by the formula $Q(NCO)_n$ in which n represents a number from 2 to about 5 and Q represents an aliphatic hydrocarbon group containing from 2 to about 18 carbon atoms, a cycloaliphatic hydrocarbon group containing from 4 to about 15 carbon atoms, an araliphatic hydrocarbon group containing from 8 to 15 carbon atoms, or an aromatic hydrocarbon group containing from 6 to about 15 carbon atoms,
- b) a polyol mixture comprising:
 - i) from 5 to 15 parts by weight of a propylene oxide adduct of an amine containing starting component, which adduct has a molecular weight of up to 1000,
 - ii) a propylene oxide adducts of a low molecular weight organic compound having from 3 to 6 OH groups which adduct has a molecular weight of no more than 1000,
 - iii) a propylene oxide adduct of a low molecular weight diol which adduct has a molecular weight of no more than 3000, and
- c) from 0.0001 to 0.05 parts by weight per hundred parts by weight of the polyol mixture of a tin catalyst.

Claim 20 (Original): The composite of Claim 19 in which adduct i) of the polyol mixture has a molecular weight of from 400 to 600, adduct ii) of the polyol mixture has a molecular weight of from 600 to 800 and adduct iii) has a molecular weight of from 1,500 to 2,500.

Claim 21 (Previously presented): A canal or ditch lined with an improved polyurethane geotextile composite which has been produced by:

~~dispensing an unfilled polyurethane composition onto~~impregnating a geotextile with an unfilled polyurethane composition comprising a reaction product of:

- a) a liquid polyisocyanate having an isocyanate content of at least 10% by weight and represented by the formula $Q(NCO)_n$ in which n represents a number from 2 to about 5 and Q represents an aliphatic hydrocarbon group containing from 2 to about 18 carbon atoms, a cycloaliphatic hydrocarbon group containing from 4 to about 15 carbon atoms, an araliphatic hydrocarbon group containing from 8 to 15 carbon atoms, or an aromatic hydrocarbon group containing from 6 to about 15 carbon atoms,
- b) an isocyanate reactive component comprising one or more polyether polyols having from 2 to 6 hydroxyl groups and a number average molecular weight of at least 250 to 8,000 and 0 to 10% by weight, based on total weight of b), a low molecular weight diol or triol having an equivalent weight of from 31 to 99, and
- c) an organometallic catalyst,

wherein the isocyanate reactive component b) contains no more than 0.1% by weight water prior to reaction with the liquid polyisocyanate a),

laying the polyurethane geotextile onto a surface of a canal or ditch before the polyurethane composition has fully cured,

conforming the polyurethane geotextile to the shape of the surface of the canal or ditch, and

allowing the polyurethane composite to fully cure to form a polyurethane geotextile composite liner, ~~the unfilled polyurethane composition comprising a reaction product of:~~

- a) ~~a liquid polyisocyanate having an isocyanate content of at least 10% by weight and represented by the formula $Q(NCO)_n$ in which n represents a number from 2 to about 5 and Q represents an aliphatic hydrocarbon group containing from 2 to about 18 carbon atoms, a cycloaliphatic hydrocarbon group containing from 4 to about 15 carbon atoms, an araliphatic hydrocarbon group containing from 8 to 15 carbon atoms, or an aromatic hydrocarbon group containing from 6 to about 15 carbon atoms,~~
- b) ~~an isocyanate reactive component comprising one or more polyether polyols having from 2 to 6 hydroxyl groups and a number average molecular weight of at least 250 to 8,000 and 0 to 10% by weight, based on total weight of b), a low molecular weight diol or triol having an equivalent weight of from 31 to 99, and~~
- c) ~~an organometallic catalyst,~~

~~wherein the isocyanate reactive component b) contains no more than 0.1% by weight water prior to reaction with the liquid polyisocyanate a).~~

Claim 22, (Previously presented): The composite of Claim 19, wherein the polyol mixture b) contains no more than 0.1% by weight water prior to reaction with the liquid polyisocyanate a).

Claim 23 (Previously presented): The composite of Claim 19, wherein the amounts of component a) and polyol mixture b) are such that the NCO : OH equivalent ratio is from 1.4:1.0 to 0.9: 1.0.

Claim 24 (Previously presented): The composite of Claim 19, wherein the amounts of component a) and polyol mixture b) are such that the NCO : OH equivalent ratio is from 1.1:1.0 to 1.0:1.0.

Claim 25 (Previously presented): The composite of Claim 19, wherein the liquid polyisocyanate has an isocyanate group content of more than 20% by weight.

Claim 26 (Previously presented): The composite of Claim 19, wherein the liquid polyisocyanate has an isocyanate group content of more than 30% by weight.

Claim 27 (Previously presented): The composite of Claim 19, wherein the liquid polyisocyanate is an aromatic polyisocyanate.

Claim 28 (Previously presented): The composite of Claim 19, wherein the liquid polyisocyanate is a polymethylene poly(phenylisocyanate) having an NCO-content of about 30 to 33% and a viscosity of from about 20 mPa·s to 2,000 mPa·s at 25°C.

Claim 29 (Previously presented): The composite of Claim 19, wherein the amount of polyurethane per square meter of geotextile ranges from 1kg to 20 kg.

Claim 30 (Previously presented): The composite of Claim 19, wherein the amount of polyurethane per square meter of geotextile ranges from 2kg to 5 kg.

Claim 31 (Previously presented): The composite of Claim 19, wherein the thickness of the polyurethane geotextile composite ranges from 50 microns to about 500 microns.

Claim 32 (Previously presented): A canal or ditch lined with an improved polyurethane geotextile composite which has been produced by ~~dispensing an unfilled polyurethane composition onto~~;

impregnating a geotextile with an unfilled polyurethane composition comprising a reaction product of:

- a) a liquid polyisocyanate having an isocyanate content of at least 10% by weight and represented by the formula $Q(NCO)_n$ in which n represents a number from 2 to about 5 and Q represents an aliphatic hydrocarbon group containing from 2 to about 18 carbon atoms, a cycloaliphatic hydrocarbon group containing from 4 to about 15 carbon atoms, an araliphatic hydrocarbon group containing from 8 to 15 carbon atoms, or an aromatic hydrocarbon group containing from 6 to about 15 carbon atoms,

- b) a polyol mixture comprising:
- i) from 5 to 15 parts by weight of a propylene oxide adduct of an amine containing starting component, which adduct has a molecular weight of up to 1000,
 - ii) a propylene oxide adduct of a low molecular weight organic compound having from 3 to 6 OH groups which adduct has a molecular weight of no more than 1000,
 - iii) a propylene oxide adduct of a low molecular weight diol which adduct has a molecular weight of no more than 3000, and
- c) from 0.0001 to 0.05 parts by weight per hundred parts by weight of the polyol mixture of a tin catalyst,

laying the polyurethane geotextile onto a surface of a canal or ditch before the polyurethane composition has fully cured,
conforming the polyurethane geotextile to the shape of the surface of the canal or ditch, and

allowing the polyurethane composite to fully cure to form a polyurethane geotextile composite liner, ~~the unfilled polyurethane composition comprising a reaction product of:~~

- a) ~~a liquid polyisocyanate having an isocyanate content of at least 10% by weight and represented by the formula $Q(NCO)_n$ in which n represents a number from 2 to about 5 and Q represents an aliphatic hydrocarbon group containing from 2 to about 18 carbon atoms, a cycloaliphatic hydrocarbon group containing from 4 to about 15 carbon atoms, an araliphatic hydrocarbon group containing from 8 to 15 carbon atoms, or an aromatic hydrocarbon group containing from 6 to about 15 carbon atoms,~~
- b) ~~a polyol mixture comprising:~~
- i) ~~from 5 to 15 parts by weight of a propylene oxide adduct of an amine containing starting component, which adduct has a molecular weight of up to 1000,~~
 - ii) ~~a propylene oxide adduct of a low molecular weight organic compound having from 3 to 6 OH groups which adduct has a molecular weight of no more than 1000,~~

- iii) ~~a propylene oxide adduct of a low molecular weight diol which~~
~~adduct has a molecular weight of no more than 3000, and~~
- e) ~~from 0.0001 to 0.05 parts by weight per hundred parts by weight of the~~
~~polyol mixture of a tin catalyst.~~